DEPARTMENT OF AGRICULTURE

Office of the Dairy and Cold Storage Commissioner.

THE USE OP PEPSIN AS SUBSTITUTE OR PARTIAL SUBSTITUTE FOR RENNET IN THE MANUFACTURE OF CHEESE.

Since the outbreak of the war this branch has been urging the cheesemakers to secure raw rennets from farmers and butchers in their own localities as was the practice in the early days of the cheesemaking industry. This course seemed advisable for the reason that the supply of such material has been secured chiefly, in recent years, from those Central European countries with whom we are now at war.

Only a limited quantity of rennets (calves' stomachs) have been secured, and the cheese factories are now faced with a possible shortage, and exceedingly high prices for rennet extract in any case.

PEPSIN.

It has been known for some time that pepsin, in its various forms, has the property of coagulating milk, as rennet does, but its cost compared with the normal cost of rennet extract having been prohibitive it has not been used for experimental purposes.

The recent excessive advance in the price of rennet extract alters the situation and the use of pepsin would now be a commercial advantage in point of cost.

TESTS AT FINCH DAIRY STATION.

To help meet the situation tests have been conducted at the Finch Dairy Station with a view of determining if pepsin may be safely used as a temporary substitute or partial substitute for rennet.

A number of cheese were made by Mr. Geo. Barr and F. J. Singleton, using pepsin as a coagulant. These were examined on June 7 by the experts of the Dairy Division, Prof. Dean, Messrs. Frank Herns, G. G. Publow, L. A. Zufelt, E. Bourbeau, Geo. Hodge and others. In each test there were two cheese made, one of which was "set" with rennet and the other with pepsin. In every case but one the judges awarded first place to the cheese made with rennet, but the difference was very slight and chiefly in the matter of texture, which was a little smoother in the cheese made with rennet.

It was the unanimous opinion, however, that it would be safe to recommend the use of pepsin, in cases where no rennet can be obtained, or to eke out a limited supply, by using a mixture of rennet and pepsin. Prof. Dean reported that tests made at Guelph in which a mixture of rennet and pepsin was used gave rather better results than pepsin alone. This practice is recommended where it is possible.

In the light of the foregoing results the option on a quantity of pepsin, which was secured by direction of the Minister of Agriculture some time ago, was at once taken up, and it is expected that this supply will be available in the course of a few days for distribution to cheese factories that submit reasonable proof of being actually short of rennet and unable to secure a further supply.

Distribution will be made only in lots of 1 to 5 pounds at a time.

One pound of pepsin is equal to a little more than one gallon of standard rennet extract.

[OVER]

Application for pepsin must be made on the enclosed form. It will be sent *only after payment for same has been received.* (Remittance must include postage, if pepsin is to be sent by mail and the price of a measure for the first order).

Full directions for using pepsin will be supplied with every lot sent out.

NOTES.

Pepsin is sold in different forms. Scale pepsin, which comes in the form of thin amber flakes or "scales" is obtainable only in limited quantities. Soluble powdered pepsin, as the names indicates is sold as a fine powder. It is claimed to have exactly the same properties as scale pepsin, but does not dissolve so easily.

Other forms are known as spongy pepsin, granular pepsin, etc.

Pepsin is also prepared of different strengths.

The supply presently available for distribution by the Department of Agriculture is soluble powdered pepsin of a stated strength of 1 to 3,000.

J. A. RUDDICK,
Dairy and Cold Storage Commissioner.

OTTAWA, June 12, 1916.